RIGGING:

IT IS ALIGHNMENT OF AIRCRAFT PARTS OR SECTIONS TO OBTAIN PROPER FLIGHT CHARACTERISTICS.A CERTAIN AMOUNT OF RIGGING IS NECESSARY DURING THE ASSEMBLY OF AN AIRCRAFT AND AFTER FINAL ASSEMBLY.THERE IS OVERLAP BETWEEN THE ASSEMBLY OPERATION AND RIGGING OPERATION.

HELICOPTER FLIGHT CONTROLS
IT CONTROLS:

1.MOVEMENT ABOUT THE THREE AXES OF THE AIRCRAFT

2.THE ENGINE POWER

3.THE ROTOR SYSTEM LIFT.

THE CONTROL CONSISTS OF CYCLIC CONTROL,ANTITORQUE CONTROLS,THROTTLE AND COLLECTIVE CONTROL

RIGGING OF HELICOPTERS
MAIN ROTOR IS CONTROLLED BY TWO PRINCIPAL SYSTEMS,
THE COLLECTIVE PITCH CONTROL AND CYCLIC PITCH CONTROL

THE COLLECTIVE PITCH CONTROL CHANGES PITCH ON ALL BLADES OF THE MAIN ROTOR SIMUTANEOUSLY.COLLECTIVE PITCH IS ADJUSTED BY RAISING OR LOWERING THE COLLECTIVE PITCH LEVER.

THE CYCLIC PITCH CONTROL IS EMPLOYED TO CHANGE THE PITCH OR ANGLE OF THE PLANE OR DISK THROUGH WHICH THE MAIN ROTOR BLADES ROTATE.

THE DIRECTION IN WHICH A HELICOPTER IS POINTED IS CONTROLLED BY THE ANTITORQUE ROTOR(TAIL ROTOR)

TRACKING AND BALANCING THE MAIN ROTOR

TRACKING OF A HELICOPTER ROTOR MEANS DETERMINING IF ONE BLADE FOLLOWS THE PATH OR TRACK OF THE OTHER BLADE OR BLADES AS THEY ROTATE DURING OPERATION.TWO PRICIPAL METHODS OF ROTOR TRACKING ARE

1.STROBOSCOPIC LIGHT TRACKING
2.FLAG TRACKING

THE ELECTRONIC EQUIPMENT USED IS VIBREX TRACK AND BALANCE SYSTEM.IT IS USED TO CORRECT TRACK AND BALANCE BY DEVELOPING DATA IN THE FLIGHT THROUGH THE USE OF ACCELEOMETERS AND STROBOSCOPIC LIGHTS.THE SIGNALS FROM THESE DEVICES ARE REFERED ROTOR POSITION BY MEANS OF MAGNETIC PICK UP AND INTERRUPTER SYSTEM.

FLAG TRACKING METHOD:

IN THIS METHOD A TRACKING FLAG IS CONSTRUCTED FROM ALUMINIUM OR STEEL TUBING. THE FLAG PORTION SHOULD BE MADE OF STRONG,LIGHT WEIGHT FABRIC TAPE.
THE REINFORCING TAPE USED IN AIRCRAFT FABRIC WORK IS A SUITABLE MATERIAL.THE MAIN ROTOR BLADE TIPS ARE COLORED WITH GREASE PENCILS,USING A DIFFERENT COLOUR ON EACH TRIP.

INSPECTION AND MAINTENACE OF LANDING GEAR
A THROUGH INSPECTION OF LANDING GEAR INVOLVES THE CAREFUL EXAMINATION OF THE ENTIRE STRUCTURE OF THE GEAR ,INCLUDING THE ATTACHMENTS TO THE FUSELAGE OR WING,STRUT,WHEELS,BRAKES,ACTUATING ,MECHANISM, FOR RETRACTABLE GEAR,GEAR HYDRAULIC SYSTEM AND VALVES,GEAR DOORS,AND ALL ASSOCIATED PARTS.

1.FIXED GEAR INSPECTION

2.INSPECTION OF RETRACTABLE LANDING GEAR

INSTALLATION AND MAINTENANCE OF INSTRUMENTS

THE INSTALLTION OF INSTRUMNET REQUIRES THAT THEY BE MOUNTED TO A METAL INSTRUMENT PANEL OR SUBPANEL.
REGARDLESS OF THE TYPE OF MOUNT ,THE INSTALLATION SHOULD ALLOW THE PILOT OR CREW MEMBER TO CLEARLY VIEW THE INSTRUMENT FROM A NORMAL FLIGHT POSITION.THE INSTALLATION SHOULD CAUSE A MINIMUM OF OPERATIONAL INTERFERENCE WITH CONTROL SYSTEMS AND OTHER INSTRUMENTS.

INSTRUMENT SHOULD BE CHECKED FOR PROPER OPERATION,CONDITON AND PLACEMENT OF RANGE MARKINGS,CONDITION OF CASES, CLEANLINESS OF CASE VENT FILTERS,
SECURITY OF MOUNTING,AND TIGHTNESS OF TUBE AND ELECTRICAL CONNECTIONS.
GYRO INSTRUMNETS SHOULD BE CHECKED FOR GYRO ERECTION TIME AND UNUSUAL NOISE DURING OPERATION.

INSPECTION AND MAINTENACE OF FIRE PROTECTION SYSTEMS

MECHANICAL PARTS ARE EXAMINED FOR THE DAMAGE,WEAR, SECURITY OF MOUNTING AND COMPLIANCE WITH TECHNICAL AND REGULATORY REQUIREMENTS.ELECTRICAL CONTROL SYSTEM ARE INSPECTED IN ACCORDANCE APPROVED PRACTICES.
CONTINUITY OF ELECTRICAL CIRCUITS
MAY BE TESTED.

INSPECTION AND MAINTENANCE OF ICE PROTECTION SYSTEM

THE INSPECTION OF PNEUNATIC MECHANCIL DEICER SYSTEMS REQUIRE AN EXAMINATION OF THE DEICER BOOTS FOR CONDITION, ADHERENCE TO THE PROTECTED SURFACE AND CONDITION OF THE SURFACE OF THE BOOTS.

DURING INSPECTION AND MAINTENACE THE TECHNICIAN SHOULD DETERMINE WHETHER THE CONDUCTIVE COATING IS INTACT AND EFFECTIVE.

OPERATIONAL TESTS ARE PERFORMED AS SPECIFIED IN APPROPRIATE INSTRUCTIONS.THE INFLATION OF THE TUBES IN THE BOOTS CAN BE EASILY BE OBSERVED.

TROUBLESHOOTING

TROUBLE SHOOTING IS THE PROCESS OF IDENTIFYING THE CAUSE OF A MALFUNTION DETERMINING ITS SEVERITYH,ELIMINATING THE CAUSE,REPLACING OR REPAIRING DISCREPANT COMPONENTS,SYSTEMS ,OR STRUCTURES AND FINALLY RETURNING THE AIRCRAFT TO SEVICE.

THE ULTIMATE OBJECT OF TROUBLESHOOTING IN AVIATION IS TO RETURN AIRCRAFT TO AN AIRWORTHY CONDITION OFFERING A HIGH PROBABILITY THAT THE MALFUNCTION OR DISCREPANCY WILL NOT RECUR.

TROUBLE SHOOTGING IS MORE THAN JUST REPLACING MALFUNCTIONING COMPONENT OR MAKING A REPAIR.

1.THE FIRST STEP IN TROUBLESHOOTING IS TO IDENTIFY THE TRUE CAUSE OF THE DISCREPANCY.

2.THE SECOND STEP IN THE TROUBLESHOOTING PROCESS IS TO EVALUATE THE REPORTED DICREPANCY TO DETERMINE IF IT HAS AN ADVERSE EFFECT UPON THE AIRCRAFT AIRWORTHINESS.

3.THE THIRD STEP CORRECTIVE ACTION MUST BE TAKEN BEFORE ITS NEXT FLIGHT.

TROUBLE SHOOTING CHARTS DESIGNED TO HELP THE TECHNICIAN IDENTIFY FAILED COMPONENTS.

VALIDATION OF TROUBLESHOOTING RESULTS.

THE FINAL STEP IN THE TROUBLESHOOTING PROCESS IS THE VALIDATION THAT THE ANALYTICAL STEPS OF THE TROUBLSHOOTING PROCESS WERE PROPERLY INTERPRETED. THIS OFTEN RESULTS IN THE NECESSITY FOR SOME TYPE OF OPERATIONAOL CHECK.THE PROCEDURES FOR SUCH A CHECK SHOUOLD BE SPECIFIED IN THE AIRCRAFT MAINTENANCE MANAUL.
WHEN OPERATIONALLY CHECKING INTERMITTENT DISCRPANCIES, THE CHECK NEEDS TO INCLUDE THE SUPECTED CAUSES.

HAZARDOUS MATERIALS

THE AVIATION MAINTENANCE TECHNICIAN FREQUENTLY MUST WORK IN POTENTIALLY DANGEROUS ENVIRONMENTS.
THE TECHNICIAN MAY NOT AWARE HE IS WORKING WITH HAZARDOUS MATERIALS.

THREE CATEGORIES.

1.CHEMICAL AGENTS
2.PHYSICAL AGENTS
3.BIOLOGICAL HAZARDS.

CHEMICAL AGENTS

FACTOR STANDS FOR

FLAMMABLE
AND
CORROSIVE
TOXIC
OR
REACTIVE

FLAMMABLES AND COMBUSTIBLES

FLAMMABLES ARE MATERIAL THAT MAY EASILY IGNITE IN THE PRESENCE OF CATALYST SUCH AS HEAT , SPARKS,OR FLAME.THEY MAY IN THE FORM SOLID,LIQUID, OR GAS.COMBUSTIBLE LIQUIDS ARE VERY SIMILAR TO FLAMMABLE LIQUIDS,BUT THEY ARE NOT AS EASY TO IGNITE. THESE MATERIAL IN AVIATION INDUSTRY INCLUDE FUELS,PAINT RELATED PRODUCTS,ALCOHOLS, ACETONE,TOLUENE .

PERSONAL SAFETY EQUIPMENT

1.FIRE RETARDANT CLOTHING

2.FIRE EXTINGUISHER

HANDLING AND STORAGE

1.LIMIT ACCESS TO OPEN FLAMES,SPARKS,HOT SURFACES ETC
2.LIMIT QUANTITY REQUIRED TO THE MINIMUM
3.STORE IN THE APPROVED CONTRAINERS AND DESIGNATED AREAS ONLY.
4.STORE FLAMMABLE TOXINS AND CORROSIVE TOXIC MATERIALS SEPARATELY.

TOXINS

TOXINS ARE GENERALLY DEFINED AS ANY SUBSTANCE
THAT CAN CASUSE AN ILLNESS OR INJURY.

EIGHT CATEGORIES OF TOXINS.
1.SOVENTS AND THINNERS FOR PAINTS,KETONES AND ADHESIVES.
2.SOLIDS SUCH AS METAL DUST OR ASBESTOS.
3.MACHINE LUBRICANTS,CUTTING FLUIDS AND OILS
4.POLYMERS,EPOXIES AND PLASTICS
5.GASES SUCH AS CARBON DIOXIDE OR NITROGEN.
6.SENSITIZERS SUCH AS EPOXY SYSTEMS.
7.CARCINOGENS
8.REPRODUCTIVE HAZARDS

PHYSICAL HAZARDS

THESE HAZARDS INCLUDE X RAY,MICROWAVES,BETA OR GAMMA RAYS,INVISIBLE LASER BEAMS AND HF SOUND WAVES

BIOLOGICAL HAZARDS

BIOLOGICAL HAZARDS ARE LIVING ORGANISMS THAT CAUSE ILLNESS OR DISEASE.SPREAD THROUGH AIR DROPLETS OR SPORES AND ENTER THE BODY THROUGH CONACT.eg cargo aircraft/baggage